

HARBOR AT TONAWANDA AND NORTH TONAWANDA, N. Y.

LETTER

FROM

THE ACTING SECRETARY OF WAR,

TRANSMITTING,

WITH A LETTER FROM THE CHIEF OF ENGINEERS, REPORTS ON
PRELIMINARY EXAMINATION AND SURVEY OF HARBOR AT
TONAWANDA AND NORTH TONAWANDA, N. Y., WITH A VIEW TO
SECURING A DEPTH OF 23 FEET.

JANUARY 27, 1914.—Referred to the Committee on Rivers and Harbors and ordered
to be printed, with illustration.

WAR DEPARTMENT,
Washington, January 24, 1914.

THE SPEAKER OF THE HOUSE OF REPRESENTATIVES.

SIR: I have the honor to transmit herewith a letter from the
Acting Chief of Engineers United States Army, dated 23d instant,
together with copies of reports from Col. J. G. Warren, Corps of
Engineers, dated August 21 and December 9, 1913, with map, on
Preliminary examination and survey, respectively, of harbor at
Tonawanda and North Tonawanda, N. Y., made in compliance with
provisions of the river and harbor act approved March 4, 1913.

Very respectfully,

HENRY BRECKINRIDGE,
Acting Secretary of War.

WAR DEPARTMENT,
OFFICE OF THE CHIEF OF ENGINEERS,
Washington, January 23, 1914.

From: The Chief of Engineers, United States Army.

To: The Secretary of War.

Subject: Preliminary examination and survey of harbor at Tona-
wanda and North Tonawanda, N. Y.

There are submitted herewith, for transmission to Congress,
reports dated August 21 and December 9, 1913, with map, by Col.

J. G. Warren, Corps of Engineers, on preliminary examination and survey, respectively, authorized by the following item contained in the river and harbor act approved March 4, 1913: Harbor at Tonawanda and North Tonawanda, N. Y., with a view to securing a depth of 23 feet.

2. The existing project for improvement of Tonawanda Harbor and Niagara River provides for a channel 400 feet wide and 18 feet deep at mean river level from Lake Erie to the north line of North Tonawanda and for 18 feet depth in Tonawanda Harbor. The improvement apparently desired by local interests is to have the whole Tonawanda Harbor Channel deepened to 23 feet, viz, the main river channel extended to the north line of the Weston & Co.'s dock 10,000 feet long; the channel between Tonawanda Island and the mainland, 6,800 feet long; and the Tonawanda Creek Channel to the fixed highway bridge, 1,400 feet long. As a result of his investigation, the district officer, who is also division engineer, reaches the conclusion that the only improvement now necessary and advisable is the deepening of the main river channel, about 5,100 feet long, to 23 feet at mean river level, 400 feet wide, with a basin about 1,200 feet long and 1,050 feet wide, as indicated on accompanying map, at a total estimated cost of \$252,000. He is of opinion that the locality is worthy of improvement to this extent, provided that the local authorities will lower, at their own expense, the intake pipes of the Tonawanda and North Tonawanda waterworks crossing the proposed channel, which it appears they are willing to do. He suggests that this work be made a part of the existing project for the improvement of Black Rock Harbor and Channel; that the existing project for Tonawanda Harbor and Niagara River be abolished; that the balance of funds on hand be transferred to the Black Rock Harbor and Channel improvement; and that the work now recommended be executed from funds on hand, or authorized but not yet appropriated, for completing that project.

3. These reports have been referred, as required by law, to the Board of Engineers for Rivers and Harbors, and attention is invited to its accompanying report, dated December 30, 1913, concurring with the views of the district officer.

4. After due consideration of the above-mentioned reports, I concur with the district officer and the Board of Engineers for Rivers and Harbors, and therefore report that the improvement of the harbor at Tonawanda and North Tonawanda is deemed advisable so far as to extend the 23-foot channel, 400 feet wide, in Niagara River downstream to and including the turning basin, as shown on accompanying map, at an estimated cost of \$252,000, as a part of the project for improvement of Black Rock Harbor and Channel. It is recommended that the project for improving Tonawanda Harbor and Niagara River be made a part of the project for Black Rock Harbor and Channel; that the funds on hand be transferred to the credit of the appropriation for Black Rock Harbor and Channel; and that all funds on hand under the two existing projects and funds authorized but not yet appropriated, amounting to \$300,000, be made available as required for the work now proposed. As it is desirable to complete the work under one contract, the first appropriation should

\$300,000, which will provide in full for all work contemplated under the combined project.

EDW. BURR,
Colonel, Corps of Engineers,
Acting Chief of Engineers.

REPORT OF THE BOARD OF ENGINEERS FOR RIVERS AND HARBORS
ON SURVEY.

[Second indorsement.]

BOARD OF ENGINEERS FOR RIVERS AND HARBORS,
December 30, 1913.

to the CHIEF OF ENGINEERS, UNITED STATES ARMY:

This is a report of preliminary examination and survey of harbor at Tonawanda and North Tonawanda, N. Y., with a view to increasing a depth of 23 feet. This harbor is in the Niagara River, about 12 miles from Lake Erie. At present it is reached by lake vessels through the channel provided under the project for the improvement of Tonawanda Harbor and Niagara River, which contemplates a channel 400 feet wide and 18 feet deep at mean river level from Lake Erie to the north line of North Tonawanda, including dredging of Tonawanda Harbor and Tonawanda Creek up to the dam to a depth of 18 feet. Except in the rapids at the Buffalo sewerworks intake pier, where the 18-foot channel is 100 feet wide, from the Tonawanda Iron & Steel Co.'s property to the north of North Tonawanda, where the natural depth is 12 to 15 feet, the projected channel is now available.

A project for the improvement of Black Rock Harbor and channel, which provides for a connection between Lake Erie and the Niagara River 23 feet in depth, will be completed in 1914, so that through the use of this waterway the full 18-foot depth in the existing Tonawanda project may be availed of without the necessity of using the rapids of the Niagara River at Buffalo.

The improvement now desired by local interests is a depth of 23 feet in the whole of Tonawanda Harbor, which includes the main harbor before mentioned, extending to the north line of Weston & Sons docks, and the channel between Tonawanda Island and the mainland and the Tonawanda Creek Channel.

The investigations of the district officer, as indicated in his report on preliminary examination, lead to the conclusion that, except for the main river channel leading to the Tonawanda Iron & Steel Co.'s property, there is no adequate demand for channels of greater depth than 18 feet, for the reason that, aside from the ore traffic, which is handled preferably in deep-draft vessels, there is very little commerce excepting in lumber, and this commodity can be satisfactorily handled in vessels of moderate draft in an 18-foot channel. The total commerce of the locality is reported to have been 20,390 tons in 1912, of which 586,207 tons were iron ore and 569,878 tons were lumber.

A survey having been made, the district officer presents a plan of improvement which provides for extending the 23-foot channel

made available by the Black Rock Harbor project down to and front of the property of the Tonawanda Iron & Steel Co., of North Tonawanda, with a width of 400 feet and a turning basin at the lower end either 850 or 1,050 feet wide, the estimates being \$196,875 and \$252,000, respectively. These estimates are on the basis of expenditures being required on the part of the United States in lowering the intake pipes of the Tonawanda and the North Tonawanda waterworks. It appears that the localities concerned are willing to lower these pipes at their own expense.

6. The district officer, who is also the division engineer, is of opinion that the locality is worthy of improvement to the extent proposed by the larger estimate. He considers the question of local cooperation and concludes that this should not be required. He suggests, if this project is adopted by Congress, that it be made a part of the existing project for the improvement of Black Rock Harbor and Channel, that the existing project for Tonawanda Harbor and Niagara River be abolished, and that the balance of funds on hand be transferred to the Black Rock Harbor and Channel improvement. He further suggests that the \$252,000 estimated for the work here recommended be provided for by authorizing the use of funds on hand, or authorized but not yet appropriated, in the amount of \$300,000, in connection with completing the Black Rock Harbor and Channel project.

7. The existing project for the Black Rock Harbor is to furnish a 23-foot depth from Lake Erie into the Niagara River. Between the lower end of that project and the proposed work in the vicinity of Tonawandas there is a commodious natural channel in excess of 20 feet in depth. The work now proposed for the benefit of the ore traffic is an extension of this 23-foot channel about 5,100 feet, with a turning basin at the lower end about 1,230 feet long and 1,050 feet wide. The statistics for 1912 show that there is now a tonnage of 586,207 tons of ore to be affected by the proposed improvement without regard to prospective tonnage, which is problematical. It is stated that little maintenance work will be required for many years.

8. Under existing conditions vessels of about 17 feet draft with a capacity of 3,000 to 6,000 tons. The ordinary ore-carrying vessels on the lakes now have a capacity of 8,000 to 10,000 tons, and it is of the class of vessels which it is desired to use in carrying ore to the Tonawanda Iron & Steel Co. This iron-ore traffic must be looked to for the justification of any enlargement of the present project, and the district officer believes, in concurrence with the views of the district officer, that the ore commerce is sufficient to warrant the proposed improvement. He therefore recommends a revision of the projects for Black Rock Harbor and Channel and for Tonawanda Harbor and Niagara River so as to merge the latter into the former and also to include in the former the extension of the 23-foot channel in Niagara River down to the turning basin, as shown on the accompanying map, at an estimated cost of \$252,000. It is also recommended that the funds available, or authorized but unappropriated, for the existing projects be made available for the work herein recommended. It is understood that these funds will be sufficient to complete the entire project as recommended above, and that no additional authorization of funds will be required. As the district officer states that

ould be advantageous to the United States to do all the work under contract, it is recommended that the total amount to be provided by the United States be made available in one sum.

. In compliance with law, the board reports that there are no questions of terminal facilities, water power, or other subjects so related to the project proposed that they may be coordinated thereby to lessen the cost and compensate the Government for expenditures made in the interests of navigation.

For the board:

W. M. BLACK,
*Colonel, Corps of Engineers,
Senior Member of the Board.*

PRELIMINARY EXAMINATION OF HARBOR AT TONAWANDA AND NORTH TONAWANDA, N. Y.

UNITED STATES ENGINEER OFFICE,
Buffalo, N. Y., August 21, 1913.

to: The District Engineer Officer.

The Chief of Engineers, United States Army.

Subject: Preliminary examination of harbor at Tonawanda and North Tonawanda, N. Y.

In compliance with instructions in department letter dated March 18, 1913, I submit report as follows on preliminary examination of harbor at Tonawanda and North Tonawanda, N. Y., with a view to securing a depth of 23 feet.

The locality is shown in general on United States lake survey map of Buffalo Harbor and Niagara River to the Falls, index No. 1000 and in detail on the map¹ herewith.

Tonawanda Harbor is about 12 miles down the Niagara River from its head at Horseshoe Reef Light, Lake Erie, and is reached by vessels of not over 15 feet draft via the river channel improved under the project for improvement of Tonawanda Harbor and Niagara River, N. Y., which provides for a channel 400 feet wide and 18 feet deep at mean river level from Lake Erie to the north line of North Tonawanda; and also provides for 18 feet depth in Tonawanda Harbor.

The channel of the project is completed except in the "rapids" between the Buffalo waterworks intake pier, where the 18-foot natural channel has a width of about 100 feet; and from the Tonawanda & Steel Co.'s front to the north line of North Tonawanda, where there is a natural depth of 12 to 15 feet.

Improvement of the "rapids" channel has not been made for the reason that the 23-foot channel of the project improvement of Tonawanda Harbor and Channel, to be opened to navigation in 1914, will largely supplant the river channel, and moreover will secure a short channel from Lake Erie to the mainland frontage at the mouth of Tonawanda Creek, where the New York State Barge Canal joins Niagara River.

In the project improvement of Tonawanda Harbor and Niagara River, N. Y., Tonawanda Harbor comprises the river frontage of

¹ Not printed.

Tonawanda and North Tonawanda, N. Y., extending three-fourth of a mile above and 3 miles below Tonawanda Creek, which separates the two cities; also all of the water front of Tonawanda Island, which lies in the river off the main shore, and Tonawanda Creek from its mouth to the highway bridge connecting the Tonawandas, a distance of about 1,400 feet. This harbor frontage is all occupied by lumber docks except the frontage of the Tonawanda Iron & Steel Co. furnaces, and the commerce is almost exclusively timber products and iron ore received from Great Lakes ports.

7. The channel in the main river abreast of Tonawanda Island and around the foot of the island to the Tonawanda Iron & Steel Co. dock at North Tonawanda is 18 feet deep at mean river level. Along the docks below the Tonawanda Iron & Steel Co.'s front there is a depth of from 12 to 15 feet at mean river level, and this part of the channel of the project has not been deepened because commercial interests do not as yet require it.

8. The waterway or channel between the mainland and Tonawanda Island might be termed the inner harbor of Tonawanda. It is about $1\frac{1}{8}$ miles long and generally 400 feet wide, and is crossed near midlength by a center-pivot swing railroad and highway bridge connecting Tonawanda Island with the mainland. Several small streams and the harbor portion of Tonawanda Creek (for 1,400 feet to the highway bridge) connect with this part of the harbor above the bridge. A center-pivot swing railroad bridge crosses Tonawanda Creek 450 feet above its mouth. All of Tonawanda Harbor and Tonawanda Creek channel is 18 feet deep at mean river level.

9. There is a lift lock connecting the Erie Canal and Tonawanda Creek about 1,000 feet above the mouth of the creek. Size of lock 110 feet long, 18 feet wide, 7 feet deep, lift 4 feet. The New York State Barge Canal construction will eliminate this lock and secure a direct connection between the canal and river at river level.

10. Report of a previous examination and survey of the localities is printed with map in House Document No. 143, Fifty-sixth Congress, first session, and without map in Report of the Chief of Engineers for 1900, page 4152 et seq.

Report on a preliminary examination for deep-water connection with suitable terminals that may be established at North Tonawanda at head of New York State Barge Canal is printed in House Document No. 1359, Sixty-second Congress, third session.

This report was unfavorable.

11. The improvement sought by interested parties is the extension of the 23-foot channel noted in paragraph 5 to and along the wharves at the Tonawandas.

All of the wharves are private-owned and equipped with transfer facilities suitable to the traffic for which they are used. There is no public space available for the construction of wharves.

In connection with the introduction of the item for preliminary examination in the river and harbor act the desired 23-foot channel was indicated on a chart to be only the main Niagara River portage from natural deep water at the head of Tonawanda Island to, including, the wharf frontage of the Tonawanda Iron & Steel Co. blast furnaces; a length of channel of 6,500 feet. This section is marked on the map herewith as "Route of vessels" between A and

12. In order to ascertain the views of all interested parties, a public hearing was held May 14, 1913. Copies¹ of the circular letter issued for this hearing, and all the replies thereto received at the hearing, are hereto attached.

13. These views express the desire to have the whole of Tonawanda Harbor Channel deepened to 23 feet, viz: The main river channel before mentioned, but extended to the north line of the Weston & Co.'s docks, 10,000 feet long; the channel between Tonawanda Island and the mainland, 6,800 feet long; and the Tonawanda Creek channel to the fixed highway bridge, 1,400 feet long.

Considering these channels separately:

14. *The main river channel.*—The deepening of the main river channel would be primarily to admit of carrying on the existing iron ore traffic of the Tonawanda Iron & Steel Co., in larger vessels of deeper draft than is admissible in the present 18-foot channel, viz: 18 feet at mean river level or 15 feet at extreme low-water level occurring late in the navigation season in low-water years, allowing 3 feet clearance under vessel keels.

15. The amount of this traffic is shown by the following table:

Receipts by lake and river of iron ore at docks of the Tonawanda Iron & Steel Co.

	Short tons.		Short tons.
1903.....	289, 706	1908.....	266, 212
1904.....	145, 031	1909.....	433, 187
1905.....	316, 510	1910.....	364, 111
1906.....	265, 820	1911.....	529, 546
1907.....	305, 374	1912.....	586, 207

This traffic was by vessels of 1,000 to 2,000 tons capacity and of 12 to 15 feet draft, navigating the natural Niagara River channel from Lake Erie to the company's docks. Beginning in 1914, by navigating through Black Rock Channel and Shiplock, 23 feet deep, the traffic can be carried on by larger vessels loaded to 2 to 2½ feet greater draft and of 3,000 to 6,000 tons capacity.

16. It would appear that this trebling of capacity would secure shipping advantages reasonably commensurate with the present and prospective needs of the iron-ore traffic at North Tonawanda.

17. It is known, however, that the Tonawanda Iron & Steel Co. take the view that such advantages will not be adequate for competition with the Wickwire Steel Co. in the pig-iron business, for the reason that the latter company's plant is located 5 miles up river from the Tonawanda plant on the 23-foot channel, which admits of receiving iron ore by the large lake vessels loaded to full capacity of 8,000 or possibly 10,000 tons.

18. As it is yet to be demonstrated that these large vessels fully loaded can be safely and economically employed in this traffic, which implies difficult navigation in Niagara River currents and return to Lake Erie without cargo, the views of the Tonawanda iron interests to needs for competition are not considered conclusive.

19. The proposed extension of the desired 23-foot channel for 3,500 feet downstream beyond the Tonawanda Iron & Steel Co.'s dock would be in the interest of lumber traffic, which is the only one existing at the locality. As lumber is carried in small vessels of 12 to 14 feet draft, the draft being governed by the depths at the lumber-

¹ Not printed.

shipping points on the upper Lakes and St. Lawrence River, it is not clear wherein a greater depth of channel than the 18 feet of the existing project is now needed, or will probably be needed, in view of no tangible evidence of development of traffic other than lumber.

20. *Channel between Tonawanda Island and the mainland.*—The frontages of this channel, as stated in paragraph 5, are all occupied by lumber docks. Its width is generally 400 feet; depth, 18 feet at mean river level; with current of 2 to 2½ miles per hour. Its deepening to 23 feet for use by large lake vessels would require the excavation of a turning basin at the lower end, or presuppose the existence of the deepened main river channel in lieu thereof. The comment in paragraph 19 is fully pertinent to this channel.

21. *Tonawanda Creek Channel.*—This channelway is 1,400 feet long, 160 feet wide between wharves, 18 feet deep. It could not be deepened to more than 100 feet width without undermining the old timber wharves, all of which are private property, unless they were reinforced and protected.

It will probably be the entrance and water-supply inlet from Niagara River to the New York State Barge Canal, beginning under the Main-Webster Street fixed highway bridge at the inner end of the channel way.

22. It is not apparent wherein the deepening of this narrow channel to 23 feet would serve any useful purpose. It is used only by lumber vessels, to a limited extent, by canal boats entering and leaving the State canal in connection with Tonawanda lumber traffic, and as mooring place for vessels laid up for winter.

23. Its deepening to 23 feet is advocated probably as an entering wedge to secure ultimately the deep water connection with suitable terminals that may be established at North Tonawanda at the head of the New York State Barge Canal which was the subject of the preliminary examination reported upon unfavorably in House Document No. 1359, Sixty-second Congress, third session.

24. As shown in the foregoing, the present use of all of the docks of the three channels is for the extensive lumber traffic of the locality except the iron ore docks of the Tonawanda Iron & Steel Co., occupying a frontage of about 1,600 feet.

The extent of this lumber traffic is typically shown by the commercial statistics for the calendar year 1912, as compiled for the annual report of the Chief of Engineers as follows:

COMMERCIAL STATISTICS TONAWANDA HARBOR AND NIAGARA RIVER, N. Y.

Season of navigation: Opened April 14, 1912; closed December 17, 1912.

Vessels entered and cleared.

Class.	American.	Foreign.	Total.	Net registered tonnage.
Buffalo Creek district:				
Steam.....	82	12	94	18
Sail and barges.....	105	29	134	67
Niagara district:				
Steam.....	183	49	232	153
Sail and barges.....	143	60	203	121
Total.....	513	150	663	361

No record of unregistered vessels.

Passengers carried on—		
Excursion steamers.....		156, 573
Ferry steamers.....		506, 918
Increase of tonnage, 1912 under 1911.....		417, 006
Amount of revenue collected (lake commerce).....		\$80, 418. 87
Value of imports, by lake.....	\$1, 826, 328. 00	
Value of exports, by lake.....		None.
Registered tonnage, port of North Tonawanda, N. Y.....	gross tons..	47, 945
Greatest draft of vessels.....	feet..	15
How lines of transportation established.....		None.

Freight traffic by lake and river.

Articles.	Amount, customary units.	Amount in short tons.	Valuation.	Average haul or distance freight was carried.	Rate per ton-mile.
				Miles.	Mills.
Receipts:					
Iron ore.....	523,399 tons.....	586, 207	\$1, 884, 236	900	0. 722
Lath.....	7,692,350 pieces.....	1, 923	26, 923	900	3. 333
Limestone.....	3,060 tons.....	3, 060	3, 060	234	1. 709
Lumber.....	325,644,779 feet b. m.....	569, 878	9, 769. 343	914	1. 565
Posts, cedar.....	159,000 pieces.....	3, 975	47, 700	914	1. 565
Pulp wood.....	648 cords.....	1, 296	6, 480	940	1. 600
Railroad ties.....	1,000 pieces.....	100	650	914	1. 565
Sand.....	3,375 cubic yards.....	5, 062	3, 375	10	-----
Wood pulp.....	38,889 tons.....	38, 889	816, 669	940	1. 809
Total.....		1, 210, 390	12, 558, 436	-----	-----

Shipments.

[Furnished by superintendent of public works State of New York.]

	Quantity.	Value.
Lake and river.....	None.	None.
Erie Canal.....	short tons.. 273, 774	\$3, 057, 396
Lumber included in above.....	feet b. m.. 82, 386, 618	2, 471, 599
Receipts by Erie Canal.....	short tons.. 178, 864	1, 468, 354

Number of vessels passing International Bridge, Niagara River, 1912:		
Steamers.....		4, 958
Other vessels.....		1, 144
Total.....		6, 102
Season of navigation, Apr. 1, 1912, to Jan. 28, 1913, days.....		303
Number of times bridge was opened during season.....		3, 225
Average number of times bridge was opened per day.....		10. 6

25. The decreasing tendency of lumber traffic due to decrease of supply of timber on the northern Lakes, is shown by the following table:

Receipts of timber products at Tonawanda Harbor, N. Y.

	Short tons.		Short tons.
3.....	812, 573	1908.....	458, 847
4.....	751, 282	1909.....	546, 024
5.....	817, 424	1910.....	534, 836
6.....	785, 740	1911.....	572, 821
7.....	599, 062	1912.....	616, 061

26. The argument is advanced by interested parties that the deepening of channels to 23 feet is desirable because the small lumber carriers are fast going out of existence and consequently large vessels must be used in this trade.

This is true, but it should be borne in mind that the 18-foot channel at the Tonawandas may be used, beginning in 1914, by lumber carriers of greater capacity in connection with the Black Rock Channel and Lock, and increased shipping advantages will be thus secured for lumber traffic similar to those mentioned in paragraph 15 and 16 for iron-ore traffic.

27. The requirements of prospective commerce are problematical. Interested parties state that one flour mill is to be built and more may follow. The receipt of grain, if to be by water, can be accomplished in good-sized vessels, as above stated for iron ore and lumber.

The development of other interests is practically based upon speculative probabilities that may follow the completion of the New York State Barge Canal, probably within a few years.

Whether a traffic involving transfer from canal boats or barges to lake vessels will develop is problematical, for the reason that it involves the question as to which would be the most feasible and economical—to tow canal boats up the Niagara River to vessels in Lake Erie at Buffalo, or to navigate or tow loaded lake vessels up against the Niagara River current, the Black Rock Ship Canal being utilized in both instances.

28. There are no questions of terminal facilities or water power coordinated with the proposed improvement.

29. It is believed to be fairly shown in the foregoing that the present and prospective commerce of the harbor at Tonawanda and North Tonawanda will, beginning in 1914, be provided for to at least a considerable extent commensurate with its present and prospective needs by the facilities of Black Rock Channel and Lock, which will admit of full use of the 18-foot Tonawanda channels, as already obtained or provided for by the existing project for the improvement of Tonawanda Harbor and Niagara River, N. Y.

30. It is, however, recognized that development of commerce at the Tonawandas is possible and that such development, as well as that of existing industries, may be discriminated against at that locality as compared with those located on the natural and improved deep harbor and waterway above it. At the public hearing it was stated that an extra freight charge on iron ore was imposed for delivery at Tonawanda, as compared with delivery at Buffalo, which cost the Tonawanda Iron & Steel Co. about \$75,000 per year. It was further stated that in order to fully avail itself of the advantages of a 23-foot channel and compete with other companies the Tonawanda company would be obliged to spend at least \$300,000 on more modern and larger ore unloading machinery.

In view of the foregoing, it is believed advisable, for determination of the question of worthiness of improvement, that the cost of deepening the main river channel 400 feet wide to 23 feet at mean river level (A to B on the map) be ascertained by survey, and that in connection therewith the possibility of cooperation by local interests in paying for the proposed improvement be definitely ascertained.

J. G. WARREN,
Colonel, Corps of Engineers.

[Second indorsement.]

BOARD OF ENGINEERS FOR RIVERS AND HARBORS,
September 10, 1913.

To the CHIEF OF ENGINEERS, UNITED STATES ARMY.

For reasons stated herein the board concurs with the district officer, who is also the division engineer, in recommending a survey in order to determine the extent and advisability of the improvement.

For the board:

W. M. BLACK,
*Colonel, Corps of Engineers,
Senior Member of the Board.*

SURVEY OF HARBOR AT TONAWANDA AND NORTH TONAWANDA, N. Y.

UNITED STATES ENGINEER OFFICE
Buffalo, N. Y., December 9, 1913.

From: The District Engineer Officer.

To: The Chief of Engineers, United States Army.

Subject: Report on survey of harbor at Tonawanda and North Tonawanda, N. Y.

1. In compliance with instructions in department letter of September 16, 1913, report is submitted as follows on a survey, with estimate of cost, in order to determine the advisability of improvement of harbor at Tonawanda and North Tonawanda, N. Y., with a view to securing a depth of 23 feet.

2. In the report on a preliminary examination of the proposed improvement, submitted August 21, 1913, the harbor at Tonawanda and North Tonawanda is described, the present project for improvement stated, and the further improvement desired by commercial interests fully discussed and explained. They need not be repeated here.

3. In the preliminary examination report, recommendation was made as follows:

In view of the foregoing, it is believed advisable, for determination of the question of worthiness of improvement that the cost of deepening the main river channel, 100 feet wide, to 23 feet at mean river level (A to B on the map) be ascertained by survey, and that in connection therewith the possibility of cooperation by local interests in paying for the proposed improvement be definitely ascertained.

4. The survey and estimate of cost covered by this report were made to conform to the above-quoted proposed plan of improvement.

5. The survey data required for plans and estimates in this report were found to be fully covered by a survey made by the United States Lake Survey in 1912, which included both hydrography and topography. The field sheets thereof were borrowed from Lieut. Col. J. C. Sanford, Corps of Engineers, and duplication of survey work and cost thus avoided. A map on an enlarged scale was prepared from the field sheets in October, 1913. Data relating to waterworks-intake pipe across the channel and as to the character of the river bottom materials was determined from records of channel excavation heretofore done under the present project, in files of the United States Engineer office, Buffalo, N. Y.

6. A tracing of the map, compiled from the above-mentioned data and showing the proposed 23-foot channel, is submitted herewith.

7. The location and limits of the proposed 23-foot channel would be practically the same as those of the present 18-foot channel, widened to form a basin at the lower end to adapt it to use by the large lake vessels 500 to 600 feet long, all as shown on map herewith.

8. *Estimate of cost.*—Excavation to make 23-foot depth at mean river level, 21 feet at low water, with allowance for one-half foot overdepth excavation:

Channel about 5,100 feet long, 400 feet wide, and basin about 1,000 feet long and 850 feet wide, 625,000 cubic yards, scow measure, sand, clay, gravel, and boulders, at 30 cents per cubic yard.....	\$187, 500
Contingencies and engineering, 5 per cent.....	9, 375

Total for channel and smaller basin	196, 875
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Additional basin (area A on map) 200 and 230 feet wide, along west and north sides of basin, 175,000 cubic yards, scow measure, sand, clay, gravel, and boulders, at 30 cents per cubic yard.....	52, 500
Contingencies and engineering, 5 per cent.....	2, 625

Total for channel and larger basin.....	252, 000
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Provided, however, The excavation could not be made so as to secure this channel unless waterworks intake pipes were lowered as follows

Tonawanda waterworks: Cast-iron pipe, 24 inches diameter, top of pipe 20 feet below mean river level.

North Tonawanda waterworks: Steel pipe, 48 inches diameter, top of pipe 22 feet below mean river level.

9. The channel will be stable and no funds for maintenance will probably be required for many years.

10. The Tonawanda waterworks intake pipe was placed pursuant to letter from the Secretary of War dated November 30, 1892, stating that approval of the Secretary of War is not required in this case.

11. The North Tonawanda waterworks intake pipe was authorized by permit of the Secretary of War, dated September 22, 1896, and contains proviso as follows:

That if at any time in the future greater depths are required for purposes of navigation, said pipe and force main shall be lowered by said village at its own expense to give such depths as may be required by the Secretary of War.

12. There would be no opposition to the lowering of intake pipe by the local authorities, and the work and cost thereof would be assumed by them, as shown by the certified copies of resolution passed by the common councils and boards of public works of Tonawanda and North Tonawanda, hereto attached.

13. Cooperation in paying for the proposed improvements is generally opposed by local interests primarily on the ground that the channel would be an extension of the Black Rock Channel, for which the United States furnished all of the funds.

14. The question as to distribution of expense of the improvement of Black Rock Channel was the subject of a report printed in House Document No. 913, Fifty-ninth Congress, first session. The conclusion reached therein was—

* * * There appears to be an equity in the proposition that a portion of an increase in value of land resulting from such an improvement or the one now under consideration should properly be applied to the cost of the work.

15. The views of local interests on the question of cooperation of expense were sought by letter correspondence. Pertinent excerpts herefrom are quoted as follows:

[Letter dated Nov. 26, 1913, from Wm. A. Rogers, president Tonawanda Iron & Steel Co.]

This little cut to deepen the channel through a short piece of hardpan lying between the deep water of the improvement just being completed and the principal commercial part of the harbor of North Tonawanda is only carrying out a part of the original project which at the last moment was left out of the first general plan for the reason that, when it was under discussion with the Government office here, the city of Niagara Falls made such a demonstration for the purpose of having the deep water carried clear to the Falls, which if done would have added so largely to the expense that it was deemed important by Tonawanda interests to put in the background for the time being the consideration of anything beyond the locks and Strawberry Channel, feeling confident that this little barrier would receive due consideration as this greater work progressed.

The principal commerce of the Niagara River is at the port of North Tonawanda, and this deep-water plan was initiated by citizens of that town, and we all understood the chief purpose of the work was to continue the deep-water highway of commerce to that port. I therefore consider that this part of the work is an unfinished portion of what the Government started out to do.

Our company is not keen on the subject of contributing to the cost of the work, because it will be involved in large expenditures to remodel its dock and unloading apparatus in order to handle the larger boats which will then be permitted to come to that port.

[Letter dated Nov. 28, 1913, from Miles Ayrault, treasurer the National Roofing Co., Tonawanda, N. Y.]

Your letter of November 28 to Mr. Wm. Mills, president of the North Tonawanda Board of Trade, has been brought to my attention. We wish to place ourselves on record with your department as strongly urging the deepening of the harbor of Tonawanda and North Tonawanda by the Government, as we feel that this work is a part of the plan the Government undertook to carry out when the ship lock was constructed at Black Rock. A very large part of the commerce which this lock was to accommodate would be destined for or originate from the ports of Tonawanda and North Tonawanda and would be greatly crippled owing to the shallow water if it were not made possible for the larger vessels to enter the ports. We feel therefore that the Government should complete the plan that it has undertaken.

[Letter dated Dec. 5, 1913, from W. M. Mills, president North Tonawanda Board of Trade.]

Responding to your letter of November 26 in regard to the views of interested parties as to their cooperation in the proposed improvement of our harbor, we beg to advise that we have made a canvass of the interested parties and they decline to cooperate in the cost of the improvement and submit herewith their reasons:

The improvement is all in Government waters. The industries and property on our harbor have been unintentionally discriminated against by the Government not including our harbor in the original plans of the Black Rock Ship Canal and Lock in that a large undeveloped territory adjacent to the deep water in Niagara River made available by the Black Rock Ship Canal and Lock have the advantage of being accessible to large steel lake vessels while the large and already established business along the river front at the Tonawandas are denied the above advantage, and at a time when the old wooden vessels, which only can navigate the present harbor, are fast disappearing and not being replaced. The Black Rock Ship Canal gives Black Rock and the above-mentioned territory an unfair advantage over the plants already located here, and the principal commerce of the Niagara River is at North Tonawanda.

16. It was stated in the preliminary examination report:

The main river channel.—The deepening of the main river channel would be primarily to admit of carrying on the existing iron-ore traffic of the Tonawanda Iron & Steel Co. in larger vessels of deeper draft than is admissible in the present 18-foot channel, viz, 17 feet at mean river level or 15 feet at extreme low-water level occurring late in the navigation season in low-water years, allowing 1 foot clearance under vessel keels.

The amount of this traffic is shown by the following table.

Receipts by lake and river of iron ore at docks of the Tonawanda Iron & Steel Co.

	Short tons.		Short tons.
1903.....	289,706	1908.....	266,21
1904.....	145,031	1909.....	433,18
1905.....	316,510	1910.....	364,11
1906.....	265,820	1911.....	529,54
1907.....	305,374	1912.....	586,20

This traffic was by vessels of 1,000 to 2,000 tons capacity and of 13 to 15 feet draft navigating the natural Niagara River channel from Lake Erie to the company's docks. Beginning in 1914, by navigating through Black Rock Channel and Shiplock 23 feet deep, the traffic can be carried on by larger vessels loaded to 2 to 2½ feet greater draft and of 3,000 to 6,000 tons capacity.

It would appear that this trebling of capacity would secure shipping advantage reasonably commensurate with the present and prospective needs of the iron ore traffic at North Tonawanda.

It is known, however, that the Tonawanda Iron & Steel Co. take the view that such advantages will not be adequate for competition with the Wickwire Steel Co., in the pig-iron business; for the reason that the latter company's plant is located 5 miles up the river from the Tonawanda plant, on the 23-foot channel, which admits of receiving iron ore by the large lake vessels loaded to full capacity of 8,000 or possibly 10,000 tons.

As it is yet to be demonstrated that these large vessels fully loaded can be safely and economically employed in this traffic, which implies difficult navigation in the Niagara River currents and return to Lake Erie without cargo, the views of the Tonawanda iron interests as to needs for competition are not considered conclusive.

It is however recognized that development of commerce at the Tonawandas is possible and that such development as well as that of existing industries may be discriminated against at that locality as compared with those located on the natural and improved deep harbor and waterway above it. At the public hearing it was stated that an extra freight charge on iron ore was imposed for delivery at Tonawanda as compared with delivery at Buffalo, which cost the Tonawanda Iron & Steel Co. about \$75,000 per year. It was further stated that in order to fully avail itself of the advantages of a 23-foot channel and compete with other companies, the Tonawanda company would be obliged to spend at least \$300,000 on more modern and larger ore unloading machinery.

17. In view of the foregoing, it is now believed that the Tonawanda and North Tonawanda Harbor is worthy of improvement by the United States to the extent of deepening the main river channel as hereinafter described and estimated for the larger basin at cost of \$252,000.

18. In case the project is adopted by Congress, it is suggested that it be made a part of the existing project for the improvement of Black Rock Harbor and Channel, and that the existing project for the improvement of Tonawanda Harbor and Niagara River, N. Y., be abolished, and the balance of funds on hand, viz, \$30,272.45, be reverted to the extended Black Rock improvement.

19. It is further suggested that, consistent with the above, the funds for the work herein estimated at \$252,000 be provided by authorizing the use of funds on hand, or authorized but not yet appropriated in the amount of \$300,000, to the amount required; such use of funds being admissible in connection with completing all of the work of the Black Rock Harbor and Channel project.

20. It would be most advantageous to the United States, as well as the interests of navigation, to do all of the work under one contract.

J. G. WARREN,
Colonel, Corps of Engineers.

[For Report of the Board of Engineers for Rivers and Harbors on this survey, see page 3.]

LETTER OF THE CITY CLERK OF TONAWANDA, N. Y.

CITY OF TONAWANDA,
Tonawanda, N. Y., November 22, 1913.

MY DEAR SIR: The following is a certified copy of a resolution of the board of public works of the city of Tonawanda, N. Y., duly adopted at a regular meeting thereof held the 10th day of November, 1913, and approved by the mayor of said city on the 12th day of November, 1913:
Whereas the Federal Government is contemplating deepening the channel of the Tonawanda River through the Tonawandas to a depth of 23 feet; and
Whereas the water pipes to the intake pier are laid to a depth of 20 feet below the surface of the river: Now, therefore, it is
Resolved, That this board is desirous of having said channel deepened to 23 feet, and that the city will lower its water mains to the required depth when said change will be necessary by reason of the said deepening of the channel of the river.
Respectfully submitted.

Moss W. SIMSON, *City Clerk.*

CITY OF NEW YORK,
County of Erie, city of Tonawanda, ss:

Moss W. Simson, clerk of the city of Tonawanda, do hereby certify that I have compared the annexed copy of resolution duly offered and adopted by the board of public works of said city at a regular meeting thereof held on the 10th day of November, 1913, with the original record on file in my office, and the annexed resolution is a true and correct copy thereof and the whole thereof.

In testimony whereof I have hereunto set my hand and affixed the seal of said city on the 22d day of November, 1913.

[SEAL.]

Moss W. SIMSON, *Clerk.*

Col. J. G. WARREN,
Corps of Engineers.

LETTER OF THE CITY CLERK OF TONAWANDA, N. Y.

CITY OF TONAWANDA, *Tonawanda, N. Y., November, 22, 1913.*

MY DEAR SIR: The following is a certified copy of a resolution of the common council of the city of Tonawanda, N. Y., duly adopted at a regular meeting thereof held the 19th day of November, 1913, and approved by the mayor of said city on the 20th day of November, 1913:

Whereas the Federal Government is contemplating deepening the channel of the Tonawanda River through the Tonawandas to a depth of 23 feet; and

Whereas the water pipes to the intake pier are laid to a depth of 20 feet below the surface of the river: Now, therefore, it is

Resolved, That this board is desirous of having said channel deepened to 23 feet, and that the city will lower its water mains to the required depth when said change will be necessary by reason of the said deepening of the channel of the river.
Respectfully submitted.

Moss W. SIMSON,
City Clerk.

CITY OF NEW YORK,
County of Erie, City of Tonawanda, ss:

Moss W. Simson, clerk of the city of Tonawanda, do hereby certify that I have compared the annexed copy of resolution duly offered and adopted by the common council of said city at a regular meeting thereof held on the 19th day of November, 1913, with the original record on file in my office, and the annexed resolution is a true and correct copy thereof and the whole thereof.

In testimony whereof I have hereunto set my hand and affixed the seal of said city on the 22d day of November, 1913.

[SEAL.]

Moss W. SIMSON, *Clerk.*

Col. J. G. WARREN,
Corps of Engineers.

RESOLUTION OF BOARD OF PUBLIC WORKS OF NORTH TONAWANDA, N. Y.

[Certified copy.]

BOARD OF PUBLIC WORKS,
North Tonawanda, N. Y., November 11, 1913.

Regular session. Moved by Commissioner Rosebrock:

Whereas the cities of North Tonawanda and Tonawanda have requested the United States Government to deepen the harbor of North Tonawanda and Tonawanda from 20 feet to 23 feet; and

Whereas the city of North Tonawanda has water pipes and intake pipes in Niagara River in that portion of the river where it has been requested to deepen the harbor; and

Whereas Col. James G. Warren, engineer in the United States Army, has made examination of that portion of Niagara River and harbor where it has been requested to deepen the same; and

Whereas it will be necessary to remove or lower said water pipes and intake pipes in case the United States Government should deepen said harbor; and

Whereas said Col. James G. Warren is about to make a report on the advisability and practicability of deepening said harbor: Therefore

Resolved, That the board of public works having charge of said waterworks of said city of North Tonawanda is ready and willing to lower or remove said water pipes and intake pipes necessary in such manner as the United States Government may require. Carried.

Approved by Mayor John A. Rafter, November 12, 1913.

STATE OF NEW YORK,

City of North Tonawanda, Office of Board of Public Works, ss:

I, John B. Batt, secretary of board of public works of said city, do hereby certify that I have compared the foregoing resolution with the original resolution of the board of public works of said city of North Tonawanda, N. Y., now remaining on file and of record in this office, and that the same is a correct transcript therefrom and of the whole of said original.

In witness whereof I have hereunto set my hand this 12th day of November, A. D. 1913.

[SEAL.]

JOHN B. BATT, *Secretary*

RESOLUTION OF COMMON COUNCIL OF NORTH TONAWANDA, N. Y.

[Certified copy of a resolution.]

COMMON COUNCIL,

North Tonawanda, N. Y., November 11, 1913.

Regular session. Moved by Alderman Lindhurst:

Whereas the cities of North Tonawanda and Tonawanda have requested the United States Government to deepen the harbor of North Tonawanda and Tonawanda from 18 feet to 23 feet; and

Whereas the city of North Tonawanda has water pipes and intake pipes in Niagara River in that portion of the river where it has been requested to deepen the harbor; and

Whereas Col. James G. Warren, engineer in the United States Army, has made examination of the portion of Niagara River and Harbor where it has been requested to deepen the same; and

Whereas it will be necessary to remove or lower said water pipes and intake pipes in case the United States Government should deepen said harbor; and

Whereas said Col. James G. Warren is about to make a report on the advisability and practicability of deepening said harbor: Therefore be it

Resolved, That the common council of the city of North Tonawanda hereby indorse the removal or lowering of said water pipes and intake pipes by the board of public works.

Carried.

Approved by John A. Rafter, mayor, November 12, 1913.

[SEAL.]

N. N. OILLE, *City Clerk*

STATE OF NEW YORK,

City of North Tonawanda, City Clerk's Office.

I, N. N. Oille, city clerk of said city, do hereby certify that I have compared the foregoing copy with the original resolution of the common council of the said city of North Tonawanda, N. Y., now remaining on file and of record in this office, and that the same is a correct transcript therefrom and of the whole of the said original resolution.

In witness whereof I have hereunto set my hand and affixed the seal of said city this 15th day of November, A. D. 1913.

[SEAL.]

N. N. OILLE,
City Clerk of said City





